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**From:** MacNicholl, Peter@DTSC [Peter.MacNicholl@dtsc.ca.gov]  
**Sent:** 8/17/2016 9:44:08 PM  
**To:** Fennessy, Christopher [christopher.fennessy@Rocket.com]  
**CC:** Kvam, Peter [peter.kvam@Rocket.com]; Keller, Lynn [Keller.Lynn@epa.gov]; MacDonald, Alex@Waterboards [Alex.MacDonald@waterboards.ca.gov]  
**Subject:** Initial ESU Comments on Draft Area 40 FS

Hi Chris,

Below are the initial comments from ESU staff. Generally speaking staff cannot fully evaluate the RAs due to a lack of supporting details and omission of assumptions used for the various RAs. DTSC requests that AR provide the necessary/requested information separately so the evaluation can be completed and support Program comments. Moving forward the report should be amended to include the pertinent supporting details either as an Appendix or within the relevant tables or section text. Once ESU is finished with its review a Final memo will be developed and be submitted together with Program comments and HERO Memos. Please respond at your earliest convenience with the necessary information to address the comments listed below:

1. The costs estimates included in the FS for each of the developed remedial alternatives are summaries only and do not provide sufficient detail for a proper evaluation. Details supporting the summary costs should be included in the text and in an appendix of the FS. These details should, at a minimum, include:
  - a. The volumes and basis for individual excavations
  - b. Unit and total costs for materials and equipment
  - c. Classification, labor rates and hours for individual tasks
  - d. Sampling requirements for monitoring wells by Subarea
  - e. Well construction and depth to water
  - f. Analytical costs for monitoring related to each Subarea
  - g. Description of operations and maintenance (O&M) requirements for each remedial option listed in Table 4-1
  - h. Assumptions used
  - i. Regulatory oversight costs
2. Section 4.3, Alternative 2 - In-situ Chemical Reduction, South Subarea. The text describing remedial option 6c includes removal of 4,250 tons of soil containing volatile organic compounds (VOCs) but these soils are not included in Tables 4-1 or 5-3. This discrepancy should be reconciled.
3. The cost summaries include various periodic costs but the FS does not include a discussion of what tasks were included to derive each of these costs. The basis for each periodic cost related to a remedial option should be included in the FS.
4. Table 5-3, Summary of Costs for Each Remedial Alternative. The last line in the table is labeled Total Costs. Some of the values listed are annual total costs and others 30-year total costs. These costs should be separated so there is not confusion as to the total cost over 30 years for each category (Capital, OM&M, Periodic, and Present Worth).
5. The depth below ground surface of the injection zone for the in-situ chemical reduction treatment should be specified as part of the Alternative 2 remedial alternative description.
6. Information supporting/justifying the statement in section 4 that excavated soils will be disposed of at a Class II landfill should be included in the FS. This justification should include waste characterization analytical results.

Sincerely,



**Peter MacNicholl, P.E.**

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**From:** Fennessy, Christopher [mailto:christopher.fennessy@Rocket.com]  
**Sent:** Wednesday, August 17, 2016 12:52 PM  
**To:** MacNicholl, Peter@DTSC  
**Cc:** Kvam, Peter; Keller, Lynn (Keller.Lynn@epa.gov); MacDonald, Alex@Waterboards  
**Subject:** RE: HERO Comments on Draft Area 40 FS

Thanks Peter!

**Christopher M. Fennessy, P.E.**  
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**From:** MacNicholl, Peter@DTSC [mailto:Peter.MacNicholl@dtsc.ca.gov]  
**Sent:** Wednesday, August 17, 2016 10:04 AM  
**To:** Fennessy, Christopher  
**Cc:** Kvam, Peter; Keller, Lynn (Keller.Lynn@epa.gov); MacDonald, Alex@Waterboards  
**Subject:** [EXTERNAL] HERO Comments on Draft Area 40 FS

Hi All,

Attached are the HERO memos on the Area 40 FS. ESU is generating a memo re the RA costs and assumptions and will be asking for more supporting details to assess and evaluate the respective options in the report. Program comments are still being developed and should be submitted by the end of August. I hope to send out electronic copies of the comment in advance of the hard copies.



**Peter MacNicholl, P.E.**

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